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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,600	03/30/2001	David Chong Sook Lim	17732-3856000	6055

7590 11/20/2003
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EXAMINER

ANDUJAR, LEONARDO

ART UNIT	PAPER NUMBER
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2826

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/823,600

Applicant(s)

SOOK LIM ET AL.

Examiner

Leonardo Andújar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18, 19, 21-23, 25-31 and 34-45 is/are pending in the application.
- 4a) Of the above claim(s) 25-31 and 38-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18, 19, 21-23, 34-37 and 45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03/03/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Acknowledgment

1. The amendment filed on 07/15/2003 in response to the Office action mailed on 03/26/2003 has been entered. The present Office action is made with all the suggested amendments being fully considered. Accordingly, pending in this Office action are claims 18, 19, 21-23, 25-31, 34-45.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means to make electrical connection to a printed circuit board must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Election/Restrictions

3. Claims 25-31 and 38-44 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention (method claims), there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 18, 19, 21, 23, 34-37 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuhn (US 5,793,101).

6. Regarding claim 18, Kuhn (see attached figure 2) shows a package having a substrate 20 for receiving a die down die 23 and/or a die up orientation 22. The die down die defines electrical contacts 1. The substrate comprises: a plurality of leads conductive traces (the wiring of the circuit 27) defining first contacts 1 which are arranged to accept connector wires making electrical connections from the electrical contacts of a die down die 23. Also, Kuhn shows second contacts 2 which are arranged to correspond to a die up die 22. The substrate can be placed into a package designed to accept a die up die (i.e. printed circuit board). The electrical connection may be made to the substrate second contacts as if it were a die up die (col. 1/lis. 14-27).

7. Regarding claim 19, Kuhn shows a die down 23 mounted to the substrate having wires 31a joining the electrical contacts of the die down die to the first contacts of the conductive traces. Also, Kuhn shows electrically conductive wires 31 joining the second contacts on the conductive traces to contacts 3 on a lead frame.

8. Regarding claim 21, Kuhn discloses that the die down die 23 is attached to the substrate by a non-conductive means such as epoxy (col. 5/ll. 10).

9. Regarding claim 23, Kuhn discloses that the die down die is an integrated circuit (col. 4/lis. 38-51).

10. Regarding claim 45 Kuhn (see attached figure 2) shows a package having a substrate 20 and a lead 21 with contacts 3. Kuhn shows connectors wires 31b joining

the second contacts on the trace to the lead frame contacts. Also, the lead frame provides means to make electrical connection to a printed circuit board (col. 1/lls. 14-27).

11. Regarding claim 34, Kuhn discloses that the die down die 23 is attached to the substrate by a non-conductive means such as epoxy (col. 5/ll. 10).

12. Regarding claim 36, Kuhn discloses that the die down die is an integrated circuit (col. 4/lls. 38-51).

13. Regarding claim 37, Kuhn discloses that the die down die includes components attached to the die down die (e.g. pads 25).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 22 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuhn (US 5,793,101) in view of Harper.

16. Regarding claims 22 and 35, Kuhn discloses most aspects of the instant invention including a substrate 27 comprising an insulating material (col. 4/lls. 27). Kuhn does not disclose which specific material can be used as insulating material. Harper discloses that polyimides (organic and insulating) are extensively used in the electronic industry because they have good heat resistance and good electrical properties at high temperatures (page 1.9). It would have been obvious to one of

ordinary skill in the art at the time the invention was made to make the Kuhn's substrate of polyimide (organic and insulating) in order to provide an insulating material having good heat resistance and good electrical properties at high temperatures as taught by Harper.

Response to Arguments

17. Applicant's arguments filed 07/15/2003 have been fully considered but they are not persuasive.

18. Applicant argues that Kuhn does not describe the chips with respect to pad orientation, nor does consider pad orientation anywhere in this patent. This argument is not persuasive since Kuhn's figure 2 clearly shows a substrate that is capable to accept a die down die 23 as well as die up 22. Although the applicant uses terms different to those of Kuhn to label the claimed invention, this does not result in any structural difference between the claimed invention and the prior art. The use different terminology to describe the plurality of elements that constitute an integrated circuit, as this is just a writing style and the way in which a structural limitation is expressed does not affect the configuration of the described elements.

19. Applicant argues that Kuhn does not make connections from his contact 21 to chip 23. Nonetheless, Kuhn's figure 2 clearly shows that the chip 23 is electrically connected to the contacts via the traces 27 and the chip 22. Kuhn discloses that the lead frame 21 is used to externally connect the chips (i.e. 22, 23, col. 1/lis. 14-27). Moreover, this limitation is not recited in the rejected claim(s). Although the claims are

interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

20. Applicant argues that Kuhn does not suggest a package designated to accept a specific die orientation where a die with different orientation can be mounted. Nevertheless, Kuhn discloses a substrate that is capable to receive a die up orientation or a die down orientation as evidenced by figure 2.

21. In response to applicant's argument that Kuhn does not expand his thinking, or mention, or suggest using his invention to perform the advantageous task of changing chip contact (pin out) orientation, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

22. Applicant argues that Kuhn's invention is directed to a package comprising two or more dies. Therefore, Kuhn excludes a single chip from his invention and does not discuss one chip in his specification. Nonetheless, this limitation is not recited in the claim. Note that claims does not recite that the claimed substrate is exclusively for mounting a single chip. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In any case, this limitation does not have support in specification as originally filed.

Conclusion

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

24. Papers related to this application may be submitted directly to Art Unit 2826 by facsimile transmission. Papers should be faxed to Art Unit 2826 via the Art Unit 2826 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2826 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2826 Fax Center is to be used only for papers related to Art Unit 2826 applications.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Leonardo Andújar** at **(703) 308-0080** and between the hours of 9:00 AM to 7:30 PM (Eastern Standard Time) Monday through Thursday or by e-mail via Leonardo.Andujar@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn, can be reached on (703) 308-6601.

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26. Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 305-3900**.

The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass (es): 257/678, 693 and 697	11/03
Other Documentation:	
Electronic Database(s): East (USPAT, US PGPUB, JPO, EPO, Derwent, IBM TDB)	11/03

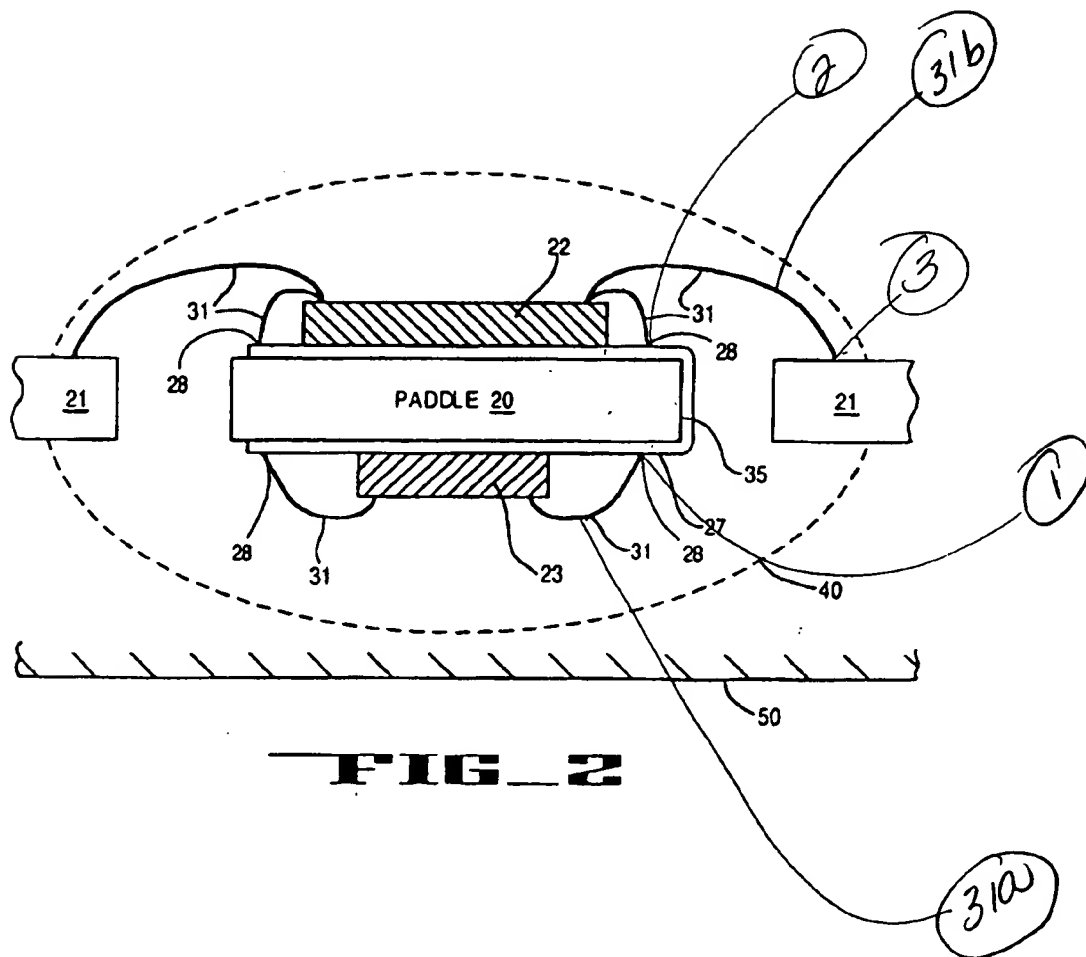
Leonardo Andújar

Patent Examiner Art Unit 2826

LA

11/15/03

NATHAN J. FLYNN
SUPERVISOR PATENT EXAMINER
TECHNOLOGY CENTER 2800



Attachment to Paper No. 18